Amendment under Article 34

(Second Amendment)

CLAIMS

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2. (amended) A field effect transistor comprising: a semiconductor layer through which carriers injected from a source region travel toward a drain region, the semiconductor layer being formed from a composite material comprising an organic semiconductor material and nanotubes, wherein

the nanotubes are each circumferentially coated with the organic semiconductor material in the semiconductor layer and the mixture ratio of the nanotubes to the whole semiconductor layer is 30 to 90% by volume.

3. A field effect transistor comprising: a semiconductor layer through which carriers injected from a source region travel toward a drain region, the semiconductor layer being formed from a composite material comprising an organic semiconductor material and nanotubes, wherein

plural ones of the nanotubes are joined with each other in the semiconductor layer.

4. The field effect transistor according to claim 3, wherein the plural ones of the nanotubes are joined with each other by chemical bond in the semiconductor layer.

5. The field effect transistor according to claim 3,

wherein a joint portion between the joined nanotubes is coated with the organic semiconductor material in the semiconductor layer.

6. The field effect transistor according to claim 2 or 3, wherein the nanotubes are carbon nanotubes.

7. The field effect transistor according to claim 2 or 3, wherein the organic semiconductor material is a polymer-type organic semiconductor material.

8. The field effect transistor according to claim 7, wherein the polymer-type organic semiconductor material is a thiophene-type material.

9. The field effect transistor according to claim 2 or 3, wherein the organic semiconductor material is a low-molecular-weight organic semiconductor material.

10. The field effect transistor according to claim 9, wherein the low-molecular-weight organic semiconductor material is an acene-type material.

11. The field effect transistor according to claim 2, wherein the nanotubes are substantially oriented in a predetermined direction in the semiconductor layer.

12. The field effect transistor according to claim 2 or 3, which is a thin film transistor.

13. The field effect transistor according to claim 2 or 3, which is formed on a substrate.

14. The field effect transistor according to claim 13, wherein the substrate is a plastic sheet or a resin film.

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19. A method of fabricating a field effect transistor having a semiconductor layer through which carriers injected from a source region travel toward a drain region, the method comprising the steps of:

(a) providing a composite material comprising an organic semiconductor material and nanotubes; and

(b) forming the semiconductor layer with use of the composite material, wherein

the step (a) includes a process of preparing the composite material by immersing the nanotubes into a solution of the organic semiconductor material and filtering the resulting mixture.

20. The method according to claim 19, wherein the nanotubes are carbon nanotubes.

21. A method of fabricating a field effect transistor having a semiconductor layer through which carriers injected from a source region travel toward a drain region, the method comprising the steps of:

(a) providing a composite material comprising an organic semiconductor material and nanotubes; and

(b) forming the semiconductor layer with use of the composite material, wherein

the nanotubes used in the step (a) include plural ones joined with each other.

22. The method according to claim 21, further comprising, prior to the step (a), the step (c) of joining the plural ones of the nanotubes with each other.

23. The method according to claim 22, wherein the plural ones of the nanotubes are joined with each other by chemical bonding in the step (c).

24. An active-matrix display comprising a plurality of field effect transistors as recited in claim 2 or 3 which are disposed as switching devices for driving pixels.

25. A wireless ID tag comprising a field effect transistor as recited in claim 2 or 3 which is used as a semiconductor device for forming an integrated circuit.

26. Portable equipment comprising a field effect transistor as recited in claim 2 or 3 which is used as a semiconductor device for forming an integrated circuit.

27. (cancelled)

28. A method of fabricating a field effect transistor having a semiconductor layer through which carriers injected from a source region travel toward a drain region, the method comprising the steps of:

(a) providing a composite material comprising an organic semiconductor material and nanotubes; and

(b) forming the semiconductor layer with use of the composite material, wherein

the step (a) includes a process of preparing the composite material by spraying and drying a solution of a polymer-type organic semiconductor material in which the nanotubes are dispersed.